

**SOL-GEL DENDRON SEPARATION AND EXTRACTION**  
**CAPILLARY COLUMN**

**ABSTRACT**

The present invention provides for a capillary column including a tube structure having an inner surface and a sol-gel substrate bonded to a dendrimer substrate to form a sol-gel dendrimer matrix that bonds to a portion of the inner surface of the tube structure to form a surface-bonded stationary phase coating thereon. The present invention additionally provides for a capillary column including a tube structure having an inner surface, a stationary phase coating attached to a portion of the inner surface, and a dendrimer moiety bonded to the stationary phase coating. Further, a sol-gel dendrimer coated apparatus including a structure having a surface and a sol-gel substrate bonded to a dendrimer substrate to form a sol-gel dendrimer matrix coating the surface thereon is provided. The present invention also provides for a one-step method for making and preparing a column and a method of making the sol-gel and dendrimer solution.